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Temperature determination of an optical thick plasma from self-reversed spectral lines

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Abstract

An analysis is given of plasma temperature determination methods from self-reversed spectral lines. Apart from Bartels' method a number of other techniques based on various physical plasma models are considered. The general case of an optically thick inhomogeneous plasma is represented by two methods based on the evaluation of a real plasma structure from absorption spectra. An algorithm of restoration of emission and absorption profiles of an optically thin layer is given as well as that of temperature determination by the light source function measured for one or more wavelengths.

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